



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,788	07/31/2006	Stephan Scharfenberg	ZAHFRI P870US	1300

20210 7590 05/27/2009  
DAVIS & BUJOLD, P.L.L.C.  
112 PLEASANT STREET  
CONCORD, NH 03301

EXAMINER
----------

KNIGHT, DEREK DOUGLAS

ART UNIT	PAPER NUMBER
----------	--------------

3655

MAIL DATE	DELIVERY MODE
-----------	---------------

05/27/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,788	<b>Applicant(s)</b> SCHARFENBERG, STEPHAN	
	<b>Examiner</b> DEREK D. KNIGHT	<b>Art Unit</b> 3655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11 and 13-21 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2009 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>GB 2055338</u> .                       |

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "18" and "12" have both been used to designate planet gears. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claim 15 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation describing the arrangement of the first prime mover, the second prime mover, and the brake within a common housing is found in amended claim 11.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 3655

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites "a drive shaft" in line 6. It is unclear to the Examiner if this is a different drive shaft than the one disclosed in line 3 of claim 1. Through out the claim applicant recites "the drive shaft" it is unclear if this is referring to the drive shaft disclosed in line 3 or the drive shaft in line 6, assuming these are different drive shafts. For the purpose of examination examiner will assume that the "drive shaft" disclosed in line 6 is a --second drive shaft-- different from the shaft disclosed in line 3.

Claim 12 recites "the drive shaft" in line 2. It is unclear to the Examiner if this is in reference to the drive shaft disclosed in line 3 or line 6 of claim 1.

Claim 13 recites the limitation "the planetary transmission" in line 15. There is insufficient antecedent basis for this limitation in the claim. It appears as though the Applicant omitted the subject matter of claim 12 in the amendment of claim 13.

Claim 14 recites the limitation "the rotating part" in line 15. There is insufficient antecedent basis for this limitation in the claim. It appears as though the Applicant omitted the subject matter of claim 12 in the amendment of claim 14.

Claim 20 recites "a drive shaft" in line 2. It is unclear to the Examiner if this is in reference to the drive shaft disclosed in line 3 or line 6 of claim 1, or if it is a different drive shaft all together.

Art Unit: 3655

Claim 21 recites "the drive shaft" in line 1. It is unclear to the Examiner if this is in reference to the drive shaft disclosed in line 3 or line 6 of claim 1.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **11, 13-15 and 19-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over **MILLER (US 2,779,425)** in view of **NOZAWA (GB 2055338A)** and **AVITAN (US 5,128,598)**.

Regarding **Claim 11: MILLER** discloses a wheel drive for an industrial vehicle, the wheel drive comprising: a first electric prime mover (26) having a drive shaft (27/31) driving an output (13), in a desired rotational direction which is drivingly coupled to a drive wheel (12); a second prime mover (47) driving a drive shaft (19) being coupled with the output (13, via housing 14) such that by rotation of the drive shaft (19) of the second prime mover (47), the output (13) rotates in a desired direction to provide a desired steering motion for the wheel drive; a brake (34) for braking the drive wheel (12); the first electric prime mover (26), the second prime mover (47) and the brake (19) all being disposed co-axially with the drive shaft (19) of the second prime mover and contained within a common housing (64) with the second prime mover (8) being located vertically below the first electric prime mover (1); and the brake (34) being located between the first prime mover (1) and the second prime mover (8).

Art Unit: 3655

**MILLER** does not disclose at least one spur gear transmission and the second mover being an electric prime mover.

**NOZAWA** teaches a wheel drive for an industrial vehicle, the wheel drive comprising: a first electric prime mover (1) having a drive shaft (9) driving an output (22), via at least one spur gear transmission (4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wheel drive of MILLER to have at least one spur gear transmission in view of NOZAWA to obtain a compact driving arrangement while obtaining a stage gearing reduction. (NOZAWA, page 1, lines 85-93).

**AVITAN** teaches a wheel drive for an industrial vehicle having a second electric prime mover (21) such the second electric prime mover rotates in a desired direction to provide a desired steering motion for the wheel drive (17).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wheel drive of MILLER such that the steering prime mover would be replaced with a hollow shaft motor in view of AVITAN to eliminate parts and to eliminate harmonic oscillations inherent within the conventional steer systems. (AVITAN, col. 1, lines 55-60).

Regarding **Claim 13: MILLER** discloses the wheel drive as rejected above in claim 11.

**MILLER** does not disclose the planetary transmission being co-axial with the first prime mover.

Art Unit: 3655

**NOZAWA** teaches the planetary transmission being co-axial with the first prime mover.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wheel drive of MILLER to have at least one spur gear transmission in view of NOZAWA to obtain a compact driving arrangement while obtaining a stage gearing reduction. (NOZAWA, page 1, lines 85-93).

Regarding **Claim 14: MILLER** discloses the wheel drive as rejected in above claim 11 with the rotating part (19) communicating with a housing (14) of the output (13).

Regarding **Claim 15: MILLER** discloses the wheel drive as rejected in above claim 11, wherein the first prime mover, the second prime mover and the brake are accommodated within a common housing (64).

Regarding **Claim 19: MILLER** discloses the wheel drive as rejected in above claim 11, wherein the brake (34) is a dry-operating disc brake.

**MILLER** does not disclose a seal located between the brake (19) and the at least one spur gear transmission (4).

**NOZAWA** teaches a seal (see around shaft 9) sealing the top of the spur gear transmission.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wheel drive of MILLER to have at least one spur gear transmission in view of NOZAWA to obtain a compact driving arrangement while obtaining a stage gearing reduction. (NOZAWA, page 1, lines 85-93).

Art Unit: 3655

Regarding **Claim 20: MILLER** discloses the first prime mover having a drive shaft (27) which is connected with the brake (34) via one of an engaging gear (30) and a fitting spring (38).

Regarding **Claim 21: MILLER** discloses the drive shaft (27/31) of the first electric prime mover (26) extends longitudinally through an interior of the drive shaft (19) of the second prime mover (47).

**MILLER** does not disclose the second prime mover being an electric prime mover.

**AVITAN** teaches a wheel drive for an industrial vehicle having a second electric prime mover (21) such the second electric prime mover rotates in a desired direction to provide a desired steering motion for the wheel drive (17).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wheel drive of **MILLER** such that the steering prime mover would be replaced with a hollow shaft motor in view of **AVITAN** to eliminate parts and to eliminate harmonic oscillations inherent within the conventional steer systems. (**AVITAN**, col. 1, lines 55-60).

**Claims 16 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **MILLER (US 2,779,425)** in view of **NOZAWA (GB 2055338A)** and **AVITAN (US 5,128,598)** as applied to claims 11, 13-15 and 19-21 above, and further in view of **OLDAKOWSKI (US 5,121,018)**.

The combination of **MILLER-NOZAWA-AVITAN** teaches a wheel drive having a brake.



The combination of **MILLER-NOZAWA-AVITAN** does not disclose the brake engaging via a spring tension and disengages via one of electromagnetic power and hydraulic power. Nor does it teach the spring being a spiral pressure spring.

**OLDAKOWSKI** teaches a brake which is engaged via a spiral pressure spring (24) and is disengaged via electromagnetic power.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wheel drive taught by the combination of AVITAN - NIEMINSKI such that the brake would be engaged via a spiral pressure spring and disengaged via electromagnetic power in view of OLDAKOWSKI so that no power would be needed to keep the motor shaft locked in position after the brake is set (OLDAKOWSKI, col. 1, lines 26-31).

**Claim 18** is rejected under 35 U.S.C. 103(a) as being unpatentable over **MILLER (US 2,779,425)** in view of **NOZAWA (GB 2055338A)** and **AVITAN (US 5,128,598)** as applied to claims 11, 13-15 and 19-21 above, and further in view of **BURENKOV et al. (US 4,234,809)**.

The combination of **MILLER-NOZAWA-AVITAN** teaches a wheel drive having a brake.

The combination of **MILLER-NOZAWA-AVITAN** does not teach the brake being a liquid cooled brake.

**BURENKOV** teaches a liquid cooled brake.

The combination of **MILLER-NOZAWA-AVITAN** teaches a wheel drive having a braking system, the BURENKOV reference teaches a liquid cooled brake. Because

Art Unit: 3655

both teach braking systems, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute one braking apparatus for the other to achieve the predictable result of stopping the wheel drive.

### ***Allowable Subject Matter***

The indicated allowability of claims 13 and 14 has been withdrawn, as the newly amended claims do not incorporate all of the claims from which the originally presented claims depended. Specifically, amended claims 13 and 14 did not include the subject matter of originally presented claim 12.

Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments with respect to claims 11 - 21 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 3655

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEREK D. KNIGHT whose telephone number is (571)272-7951. The examiner can normally be reached on Mon - Friday, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on (571) 272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3655

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. D. K./  
Examiner, Art Unit 3655

/CHARLES A. MARMOR/  
Supervisory Patent Examiner, Art  
Unit 3655